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(54) INTEGRATED SEPARATION REMOVAL DEVICE FOR SOLID AND/OR GAS FOREIGN MATTERS IN LIQUID

(57)Abstract

PURPOSE: To guide liquid after removing solid removing foreign matters into a swirl flow chamber by means of a filter device section, separate gas foreign matters in the liquid and the liquid itself and remove simultaneously and efficiently solid foreign matters and liquid foreign matters by a compact device by providing a filter device section, a swirl flow chamber and a gas foreign matter removal tube.

CONSTITUTION: A filter device consisting of a filter element reinforcing cylinder 3, a filter element 2 and an inner perforated disk 16 with encircling an isolated cylinder 4 on a check valve 1 mounted on the bottom of the device. A swirl flow chamber wall 13 of reverse conical shape is fixed onto the upper section circumference of the isolated cylinder 4, and a gas foreign matter removal tube 9 is mounted almost close to a center shaft of the swirl flow chamber 6. Liquid such as lubricant or the like passes through the check valve 1 and flows from the outside to the inside of the filter element 2 to remove the solid foreign matters. Then, the liquid comes into the swirl flow chamber 6 through a swirl flow duct 7 to generate a swirl flow separated by the difference of specific gravity, and the liquid including much of gas foreign matters passes through gas foreign matter removal pores 8 and a removal tube 9 to be removed out of the device, while purified liquid flows out of a fluid flow outlet 15.

